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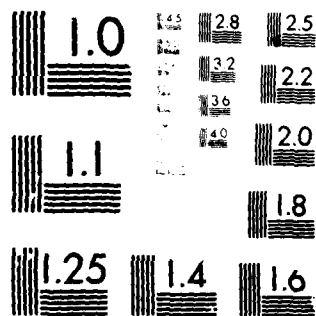
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# PROSPECTS FOR EXPANDED U.S.-USSR LICENSING ACTIVITY

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Final

March 1979

Technical Note  
SSC-TN-5553-1

By: Herbert S. Levine  
James E. Cole

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Prepared for:  
U.S. Department of Commerce  
Bureau of East-West Trade  
Washington, D.C. 20230

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SRI Project 5553

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## ABSTRACT

This technical note provides an analysis of international licensing agreements in general and those between the United States and the Soviet Union in particular. The study devotes attention to three aspects of licensing:

- 1) the characteristics of licenses and licensing activity in general;
- 2) the status of licensing activity between the United States and the Soviet Union; and
- 3) the prospects for expanded licensing activity between the United States and the Soviet Union.

Following the introduction (Part I), specific attention is given in Part II to the historical development of licensing agreements, U.S. attitudes regarding license agreements vis-a-vis other related arrangements and pricing of and profits from licenses.

Part III discusses the historical development of license trade specifically between the United States and the Soviet Union, the advantages of licensing versus other forms of acquisition of foreign technology, the organization of foreign license trade in the Soviet Union, and major issues involved in U.S.-USSR licensing agreements.

Part IV discusses the prospects for expanded U.S.-USSR licensing activity with attention given to both the expansion of U.S.-USSR trade in general and the expansion of U.S.-USSR licensing agreements.

# DISCLAIMER

The views and conclusions contained in this report are those of the authors and they should not be interpreted as necessarily representing the official policies, either expressed or implied, of the Department of Commerce or the U.S. Government.

## CONTRACTUAL TASK

This report is submitted in fulfillment of research under Contract 6-36238.

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## FOREWORD

This technical note, Prospects for Expanded U.S.-USSR Licensing Activity, was prepared for the Bureau of East-West Trade of the U.S. Department of Commerce by the Strategic Studies Center of SRI-International. The study was undertaken as part of the Center's Soviet and Comparative Economics Program which is directed by Dr. Herbert S. Levine, Senior Research Consultant at the Strategic Studies Center and Professor of Economics at the University of Pennsylvania, and M. Mark Earle, Jr., Director of SRI-International's Center for Economic Policy Research.

This study was authored by Dr. Levine and James Cole, economist at the Strategic Studies Center.

Richard B. Foster  
Director  
Strategic Studies Center

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## I INTRODUCTION

In the rather substantial literature on U.S.-USSR economic relations and in the analysis of the prospects for and obstacles to the further expansion of these relations, relatively little attention has been paid to the actual and potential role of industrial licensing. Yet, in the international transfer of technology, licensing plays a not insignificant role. And in the transfer of technology between the West and the Soviet Union, the role of licensing could be of greater importance: first, because of the institutional bar against foreign equity ownership in the Soviet Union; second, because of the possibilities that licensing could circumvent some of the barriers deriving from what many U.S. firms view as prohibitive start-up and management costs and risks of doing business with the Soviet Union; and third, because of the attractiveness of licensing to Soviet leaders as a means of access to advanced Western technology.

The objective of this study, then, is to assess the prospects for expanded U.S.-USSR licensing activities in light of U.S. and Soviet commercial and legal practices, the characteristics of licensing in comparison with alternative forms of technological trade, and the opportunities for licensing. The research approach that has been followed in this study has consisted of:

1. A background survey of the general literature on economic and commercial aspects of licensing;
2. An analysis of the specific literature on issues relating to U.S.-USSR licensing in the technology transfer process;
3. The conduct of selected interviews in the U.S. business community to explore experience and attitudes toward licensing activity with the USSR;
4. The drawing of implications for the prospects for expanded U.S.-USSR licensing activity.

The study is, thus, based on the general licensing literature and that specifically concerned with U.S.-USSR relations, augmented by interviews with U.S. businessmen and others (including some Russians) who have been involved in U.S.-USSR licensing activity. The study has not involved a large scale formal interview project with a full, formally elaborated questionnaire. Rather a series of selected interviews has been used to illuminate a number of important issues which are inadequately delineated in the literature. Toward this end, the following issues were stressed in the interviews: negotiation and contracting process, pricing and payment procedures, quality and performance guarantees, information availability and sources, future intentions and prospects, suggested role and activities of U.S. government.

From the literature survey and from advice given by the Bureau of East-West Trade, a list of U.S. businesses known to have concluded licenses or to be in the process of negotiating licenses with the Soviet Union was drawn up. The industrial areas covered by these firms included:

- herbicide manufacturing;
- chemical production;
- livestock breeding;
- crop dusting;
- metal casting processes and metal casting equipment;
- airplane parts;
- concrete mixing and setting equipment;
- offshore oil-drilling equipment of all kinds;
- compilers and calculators;
- steel production;
- ferro alloys;
- audio-video magnetic tape processing;
- detergent manufacturing;
- mineral recovery processes;
- electric power transmission; and
- tobacco products.

In choosing specific firms to interview, no effort was made to focus on any particular area or areas. Overall, sixteen firms were contacted; nine indicated a willingness to be interviewed. Of these, five resulted in useful, in-depth interviews;<sup>1</sup> the remaining four provided some insights, but not full responses to the questions of interest. Only one

of the five companies was a purchaser of Soviet technology, and none was involved in the simultaneous purchase and sale of licenses in general except when unavoidable. Further, only one of those firms contacted was involved in the sale of licenses only—the others were involved additionally with the sale of plant and equipment, technical services, construction and engineering services, etc.

Subsequent interviews were conducted with several lawyers, consulting firms and financial specialists, experienced in licensing activity between the United States and the Soviet Union. These included in-depth interviews with three lawyers and representatives from two consulting firms. In addition, several lengthy interviews were conducted with both American and Russian members of the Joint U.S.-USSR Economic and Trade Council, and one of the authors of this report participated in a two-day conference of the Legal Committee of the Economic and Trade Council at which issues relating to licensing were discussed.

The study begins with a discussion of the general characteristics of international licensing activity of U.S. firms, which relates primarily to their licensing activity with the firms of other advanced nations. This serves as a background to the discussion of licensing between U.S. firms and the Soviet Union, which follows. The study concludes with some observations on future prospects for U.S.-USSR licensing.

## II GENERAL CHARACTERISTICS OF INTERNATIONAL LICENSING ACTIVITY

The subject matter of this study is the licensing of industrial property. In technical terms, industrial property is a collective phrase for certain intangible property rights deriving from mental activity, having industrial significance, namely the rights constituted by or inherent in patents, know-how, and trade marks. Such rights can be made the subject of licenses--permission to use--on terms set out in license agreements, these agreements being part of contract law.<sup>2</sup> While the general meaning of the terms "patent" and "trade mark" is widely understood and need not be defined here, the term ' know-how' sometimes causes problems. Know-how is the body of technical information associated with a technological innovation. It can be divided into documentary information (reports, manuals, blue-prints, drawings, etc.) and information residing in the brains and skill of the people who developed the innovation. The word "know-how" was originally meant to apply only to the latter, but it is now used for both (with the terms "show-how" or "do-how" applied to the latter). As long as know-how remains confidential (secret), it can be licensed.<sup>3</sup>

The typical foreign licensing transaction of a U.S. firm involves more than just the simple licensing of a patent or trade mark. A large scale interview study of 191 U.S. corporations conducted by the National Industrial Conference Board, at the end of the 1960s, showed that know-how appeared to be the most prevalent element of foreign licensing programs--98 percent of the firms indicated that know-how was one of the rights and assistance extended to foreign licenses, while 87 percent reported the granting of patent rights and the same number, trade-mark rights.<sup>4</sup> However, the typical licensing program contained also more than just "pure" patent, know-how, and trade mark licenses. For over 90 percent of the companies in addition supplied technical and/or engineering assistance

to their foreign licenses, 49 percent supplied marketing assistance, and 41 percent supplied managerial assistance.<sup>5</sup> Furthermore, in the section of the survey dealing with types of returns received by licensing companies, 66 percent of the companies reported that they sold components or raw materials to their licensees, and 37 percent sold machinery or equipment to licensees.<sup>6</sup>

While many large U.S. corporations were involved in foreign licensing before World War II, it was not until after the war that licensing gained wide acceptance as a means of realizing returns to industrial property in foreign markets, as an alternative channel to exporting, direct foreign investment, and joint ventures. During the 1950s, there was much discussion (though not much economic research) about the advantages and disadvantages of licensing and its relative merits compared to the other channels. But by the 1970s, the Conference Board study argues, this has given way to the view that exporting, direct foreign investment, joint ventures, and licensing are compatible and complementary means of developing foreign markets. The current concern of U.S. companies is to find the most desirable (profitable) mix of these interrelated activities.

The Conference Board survey indicates that by and large U.S. companies have a preference for equity ownership, and where possible would rather be involved in a joint venture or a wholly owned subsidiary than the licensing of an unaffiliated foreign company. The reasons given reflect the view that profits are generally higher, more dependable, and more subject to the firm's influence in joint and wholly owned foreign ventures. There is also less risk of future competition. As one respondent stated, "We prefer joint ventures in order to have a partner rather than a competitor at the expiration of a licensing agreement."<sup>7</sup>

The data available on returns to U.S. firms from foreign licensing and direct foreign investment (U.S. assets abroad), while not totally

reliable measures of these returns, do provide a general picture. They show that the returns from direct investment are currently about four times the fees and royalties earned by U.S. firms from foreign licenses, and that both have grown approximately 10 1/2 percent per year in the period 1960-1977.<sup>8</sup> However, disaggregating the licensing data into payments from affiliated foreign companies and unaffiliated ones, the former grow by 11.5 percent per year and the latter only 8.3 percent per year, indicating the growing tendency of U.S. firms to combine licensing with equity ownership.<sup>9</sup>

The data also indicate that currently the returns from U.S. licensing of foreign firms and from U.S. direct investment abroad are running about ten times and seven times, respectively, the returns from foreign licensing of U.S. firms and from direct investment by foreigners in the U.S.<sup>10</sup>

Though, as suggested above, economists generally complain of the lack of adequate research in regard to how firms choose among the alternate channels for foreign exploitation of their industrial property,<sup>11</sup> economists have been working in this area, especially since the mid-1960s. This literature has focused on several major economic determinants of the choice of channel, including: the product or process innovation life cycle, product vs product innovation, size of innovating firm, and the level of potential profit.

Before moving to a discussion of these major determinants, a few remarks about other factors, some of which are also quite important. To begin, while a firm may prefer direct foreign investment, there are a number of external obstacles which may foreclose or reduce the attractiveness of this option. For example, as is well known, the Japanese government severely limits the right of direct foreign investment in the Japanese economy. The results of one study, in which the author examined over 3,000 foreign licenses granted by U.S. firms, showed

that while 15 percent of these licenses were issued to firms in Japan, only 2 percent of the book value of U.S. direct foreign investment was in Japan.<sup>12</sup> It is, however, not only the government of Japan that does not favorably regard direct foreign investment. To the governments of most host countries, the choice of channels looks quite different from the way it does to the firm wishing to maximize the rents from its technology. To the host government, direct foreign investment creates many problems: the subsidiary of a foreign firm is partly outside its control; is only partly responsive to the host country's economic policies; draws on funds and resources outside the host country; and is operated in regard to a global strategy which may be at odds with its optimal operation from the viewpoint of the host government. As a result host governments have increasingly limited the freedom of operation of foreign subsidiaries through regulatory, taxation and capital control policies, thus decreasing the attractiveness of direct foreign investment. On the other hand, host governments have in general encouraged licensing arrangements. The salience of this for U.S.-USSR relations is self-evident.

A second general factor affecting the choice of channels pertains to the difficulties that inhere in the use of ordinary market mechanisms to transfer information. It is difficult to transfer information across organizational and national boundaries. In many cases, information cannot easily be transferred independently of the technical, managerial, and entrepreneurial manpower familiar with it. Uncertainty about the value of the information in a foreign market will often preclude agreement on licensing terms that will give to the licensor his full expected rent. Also information might not be fully transferable where it relates to a differentiated market or where the innovation requires continuous market testing, and the value imputed to one innovation depends on how it is combined with others. All these considerations contribute to a preference for direct foreign investment over licensing. On the other hand, if the rent-producing advantage of the parent firm lies in some relatively simple, one-shot innovation such as a secret recipe for a successful soft-drink or cigarette, then the information could easily be transferred to a foreign firm, and terms for a profit-yielding license agreed upon.

Further general factors include such matters as licensing to gain benefits of cross-licensing, or to exploit otherwise unexploitable by-product technology, or to explore a new market and at low cost lay the foundation for possible future expansion through direct investment. Perhaps a somewhat less central factor, but one which today might carry some weight, involves exchange rate fluctuations and asset portfolio considerations. Direct foreign investment means that a U.S. firm adds an asset to its portfolio which is denominated in foreign currency, while licensing gives rise only to a claim on the yield of such an asset. Exchange rate expectations and concerns of portfolio balance thus may influence the choice of channels.

As was stated previously, the economic research on choice of channel has stressed four major factors. The first is the product (or process) life cycle model developed by Raymond Vernon.<sup>13</sup> Very briefly, the model argues that U.S. firms, using the strong science and technology base available in the United States, generate new, usually labor-saving products and processes in response to the high per capita income and relative labor shortage present in the United States. They, at first, capture foreign returns to these innovations by introducing these new products into foreign markets through exports. As the product (or process) matures, it becomes better known and local manufacturers in foreign countries begin to produce it thus threatening the export position of the U.S. firms. At this stage, the U.S. firms respond by establishing foreign subsidiaries to exploit what remains of their advantage. In time, however, the advantage erodes and the preference for direct foreign investment begins to decrease and that for licensing increase. Further, as the original innovation approaches obsolescence, the incentives for direct investment in a foreign subsidiary drop sharply, but the profit possibilities from licensing a local producer continue to exist.



Another reason for this sort of pattern lies in the changes over time in the relative bargaining positions of the innovating firm and the country desiring the new technology. When the technology is new, the innovating firm is able to hold it quite closely, and countries wanting it are under bargaining pressure to accept the firm's conditions, which often involve direct foreign investment, a wholly-owned subsidiary. But as time passes and the technology becomes more widely known, the host country can take advantage of competition among technologically capable firms to obtain joint ventures and licenses. Eventually, as the product or process technology matures and becomes standardized, the host country may acquire it in turn-key plants from independent engineering firms.

Some recent research, focussing on the demand side of licensing (the decision to buy technology through licensing rather than reproduce the technology through the firm's own R and D efforts) argues that the demand for licensing is positively influenced by a high breakthrough nature of the innovation and negatively influenced by the complexity of the innovation, i.e., the degree to which it is a combination of several technologies. The former is so because breakthrough innovations usually require great effort, expense, and time to duplicate and are very threatening to the competitive position of other firms in the industry. The latter is so because new technology that is a combination of several technologies is harder to patent and easier to invent around.<sup>14</sup>

A second major factor in the choice of channel relates to the distinction between product and process innovations. The common argument is that U.S. firms are more willing to sell licenses to foreign firms for process technologies than they are for product technologies. One of the reasons for this is that in a process transfer the U.S. firm can probably drive a reasonably good bargain without detailed knowledge of the market conditions faced by its foreign licensee.<sup>15</sup> Furthermore, from the demand side, the imitation costs of a process innovation are high because the innovation cannot easily be perceived from

examination of the product, therefore enhancing the demand for a license.<sup>16</sup>

Some current work, however, of Edwin Mansfield and his associates, that is still in a preliminary stage, appears to show that the innovation life cycle effect may be stronger in regard to processes than to products.<sup>17</sup> In a small survey of U.S. industrial and chemical firms, inquiring of their intended foreign channels for exploiting current R and D projects in the first five years of commercialization, there was less foreign licensing of process innovations than of product innovations. The primary intended channel for exploiting process innovations in the first five years was overwhelmingly exports; and for product innovations, wholly owned subsidiaries. The assumption is that as the innovations mature, licensing supersedes exports for processes more rapidly than it supersedes wholly owned subsidiaries for products, leading to the observation that there is more international licensing of processes than of products.

A third major factor concerns the size of the innovating firm. Research on the choice of channel shows that licensing is primarily employed by relatively small firms, whereas direct foreign investment is engaged in mostly by large size firms. The main reasons for this are rather clear. Though, as has been argued, most firms, in situations where feasible, would prefer direct foreign investments, the investment costs and risks and managerial requirements of direct investment are high, usually too high for small firms. As a consequence, small firms tend to settle for licensing.<sup>18</sup> Furthermore, licensing is frequently viewed by small firms as a source of prestige. Through licenses, their products, know-how, and trade-marks are used around the world, often by the best known, largest companies.<sup>19</sup>

The fourth and final major factor emphasized in the economic research on choice of channel concerns the level of profit expected from the new technology. The higher the expected profit, the more the U.S. firm would

want to exploit it directly through a wholly owned subsidiary abroad; the lower the expected profit, the more willing a firm is to employ licensing.<sup>20</sup>

The small survey conducted by Mansfield and associates strongly supports this finding. For those projects where the estimated rate of return was 40 percent or more, foreign subsidiaries was the intended channel of technology transfer for all, 100 percent, of the respondents. Whereas, in those projects where the expected rate of profit was less than 20 percent, use of foreign subsidiaries fell to 36 percent, and licensing rose to 38 percent.<sup>21</sup>

The research on international licensing has focussed on a number of other issues, in addition to choice of channel. One of these is prices and means of payment. The return on a technological advantage held by a firm is generally regarded as a monopoly rent, though the payment for a license will normally also include payments for items other than the technology, e.g., technical and managerial services, machinery, equipment, etc. The form of payment is commonly a periodic royalty, over an 8-10 year period, with the rate applied to some activity level base such as sales or production by the licensee employing the licensed product or process. It is common for the royalty rate to be in the 3-5 percent of sales. One leading source states that it is an unwritten law that a royalty rate of 10 percent is very high and 1 percent very low, and therefore advises that rate bases be chosen in such a way that the desired amount of royalty can be derived through a royalty rate within the normal range, arguing that it is psychologically bad to request a rate that sounds very high, even though the royalty amount may not be different (from one with a lower rate but a higher rate base).<sup>22</sup> Also, it is not uncommon to employ a sliding scale, where the greater the volume of sales, the lower the royalty rate. The acceptance by the international business community of this traditional range of royalty rates reflects the understanding gained from experience that it is not in the licensor's interest to force too high a

rate on the licensee, because then this might reduce the licensee's interest in employing the license and thus might lead to very low actual royalty earnings on the part of the licensor.

In addition to royalties, fees are usually paid for services rendered the licensee by the licensor, and frequently there are some initial lump-sum payments made at the signing of contracts and at specific points after, and sometimes before the contract signing.

The literature on licensing contains many indications that U.S. firms treat the calculation of costs and profits on licenses rather casually.<sup>23</sup> The argument is that for many U.S. companies licensing is not a major activity, and there is little effort in trying to maximize profits on licenses, the companies being content as long as profits are at a satisfactory level. Furthermore, there appears to be little effort on the part of U.S. firms to actively publicize and sell licenses. And there appears to be little directing of firms' R and D programs toward the achievement of foreign licensing profits.<sup>24</sup>

### III LICENSING ACTIVITY: U.S.-USSR<sup>25</sup>

The growth, in the 1960's, of Soviet interest in expanded economic relations with the United States and other industrialized nations and the particular role played in this by Soviet desire for advanced technology has been well documented in the Western literature on the Soviet economy.<sup>26</sup> Along with this, Soviet interest in international licensing as a means of effectuating technology transfer began to grow. "Up to now," commented Kosygin at the 23rd Party Congress in 1966, "we have underestimated the significance of the trade in patents and licenses. At the same time in the rest of the world this trade plays an increasingly marked role and develops faster than trade in industrial commodities. Our scientific and technical personnel are capable of creating--and have proved this in practice--advanced machines and equipment. Therefore, we are able and should play a significant role in the world market for licenses. In turn, there are a number of cases where it is more profitable for us to buy licenses than to occupy ourselves with the working out of this or that problem. The purchase of patent rights abroad will make possible, in the new five year plan, the saving of hundreds of millions on scientific research work."<sup>27</sup>

The Soviet path to increased participation in the licensing trade was actually laid the year before, in 1965, when the Soviet Union joined the Paris Convention for the Protection of Industrial Property.<sup>28</sup> Discussion of the advantages of licensing picked up and in 1970, Gosplan introduced a new regulation which made trade in licenses an integral part of annual and five year plans.<sup>29</sup> In its discussion of the new regulation, Gosplan criticized the patent sections of ministries and enterprises for not buying and selling enough patents. And it spelled out in detail the advantages of buying licenses for foreign technology. Among these were the following:<sup>30</sup>

- speeding up the practical application of new techniques by two to five years;
- manufacturing a product that corresponds to the latest technical standards;
- satisfying demand for a certain product within the shortest possible period of time;
- large savings of R&D costs and reduction of risks involved in R&D work;
- enabling further research to start at a level already corresponding with the highest existing technical standard;
- savings of convertible currency by manufacturing products that previously had to be imported; and
- higher earnings of convertible currency through possible export of the licensed product.

Good data on the number and value of Soviet licenses are hard to come by. What data exist are sporadic and only partial. Though they do indicate that Soviet licensing activity is still miniscule when compared with that of the United States, they cannot be used to convey any sense of recent time trend of Soviet purchases of licenses.<sup>31</sup> Some sense of this trend can, however, be gleaned from data on USSR imports of high technology machinery, on the assumption that licenses are often involved in high technology machinery imports and that the two series would closely parallel each other. Data prepared at the Department of Commerce show that between the years 1972 and 1976 Soviet imports of high technology items from the industrialized West grew at an average rate of 30 percent per year. While this may seem extraordinarily high, it should be noted that high technology exports from the industrialized West to the world grew over these years at a rate of 22 percent per year. On the other hand, it should also be noted that Soviet imports of high technology items from the U.S. during this period grew at a rate of over 50 percent per year.<sup>32</sup> Thus, the growth in recent years of Soviet purchases of high technology products, and, by implication, of licenses, from the West and especially from the U.S. has been substantial.

### Organization

The organization of foreign license trade in the Soviet Union is similar to that of foreign trade in general, except for the presence and role of a special foreign trade organization (FTO) of the Ministry of Foreign Trade concerned with licensing. This FTO, Licensintorg, was chartered in 1962 with special responsibility for buying foreign licenses and selling Soviet licenses abroad (see Appendix for table of organization).

A U.S. firm wishing to sell a license can contact and sound out possibilities with a ministry, a major enterprise, a product related FTO or with Licensintorg itself. If the transaction deals primarily with only the purchase or sale of a license, then it is handled by Licensintorg, which also handles the related sale or purchase of machinery, equipment, materials, and manufactured goods whose delivery as prototypes and samples is stipulated in the license agreement.<sup>33</sup> Licensintorg acts on behalf of the enterprise that will use the imported technology, but it signs the license contract in its own name, not as an agent. This means that the foreign licensor's legal relations are with Licensintorg alone.

If the transaction deals primarily with the purchase or sale of machinery, equipment, or other products, then the transaction is handled by the FTO competent for the particular product line, including the purchase of the license. While in theory every FTO has the legal right to buy a license, in practice only a few buy licenses from the West directly (Traktorexport, Technopromimport, Techmashimport, Stankoimport, Mashinimport, Promashimport, and Avtopromimport). In the latter phases of negotiations by product FTOs, Licensintorg is usually consulted on juridical and economic (as distinguished from technical) aspects of the license deal.

Another FTO with special responsibility related to licensing is Vneshtekhnika, established in 1967 under the State Committee for Science

& Technology to deal with working-level problems arising out of international technology exchange. This FTO has five departments (R&D, construction, scientific equipment, samples, and technical documentation) which render a broad range of scientific and design services in the USSR as well as in foreign countries. Thus far the work of Vneshtekhnika has mainly concentrated on intensifying cooperation within Comecon, but recently it has become more active in dealing with the West.

In 1974, Gosplan published guidelines for the preparation of the 10th FYP, which prescribe a procedure for the planning of license purchases from the West.<sup>34</sup> The actual initiative to buy a specific technology from the West is usually taken by the end-user: an enterprise, industrial association or R and D institute. Through the appropriate ministry and Licensintorg, preliminary inquiries are made of Western firms about possible license purchases. The Gosplan guidelines advise the end-user on how it should calculate the economic feasibility of planned license purchases. A formula, based on a number of factors, such as cost of own research, cost of license in convertible currency (either bought with or without equipment), necessary investments in case of own development or purchase of licenses, etc., is used to determine whether it is more economical to carry out R&D work at home, to get new technology by cooperating with other socialist countries, or to purchase licenses from capitalist countries. Those desiring to purchase foreign licenses must submit a proposal to the appropriate branch ministry and justify their application by answering such questions as:

- Which tasks can be solved by the purchase of a license?
- Which domestic R&D activities can be stopped after the acquisition of a license?
- What equipment would be needed to manufacture the licensed product?
- How big is the expected demand?
- What is the planned volume of production?
- When could production be started?
- Which factories would manufacture the product?
- What financial and material means would be required?
- Why should the license be purchased from a particular Western firm?



- Would patents of other Western firms be involved in the deal?
- Would the license infringe on patents of any other companies?

The 1974 guidelines require that the following criteria be met:

- Production under license for the duration of the license contract must be at least one-third cheaper (present value) than production of the same volume on the basis of domestic R&D. The present value of a license is calculated with a discount rate of 8% per annum, which assumes that the license product is outdated after 12 years. (Most license contracts run 8-10 years.)
- The capital invested must yield a return of at least 12% annually. The foreign-exchange expenditure is converted into rubles at a fictitious (shadow) exchange rate different from the official ruble rate.
- Production must be planned to begin within two years of acquisition of the license. (This is sometimes unrealistic. Startup of production may take four years or more, particularly if the license is part of a turnkey plant package deal).

If all prerequisites are fulfilled, the license is included in a license import plan drawn up by the State Committee for Science and Technology and approved by Gosplan. The State Committee for Science and Technology allocates hard-currency funds to industrial ministries for the purchase of licenses and retains a reserve for additional unplanned license purchases in the West.

#### Major Issues

In the study, and particularly in the interviews that have been conducted to augment the research on the existing literature, emphasis has been directed toward four major issues:

- negotiating process
- pricing and payment procedures
- guarantees
- information availability

While much of the discussion will apply to US-Soviet licensing activities in both directions, the primary focus will be on sales by U.S. firms of

licenses to the Soviet Union. In a separate, brief section, the question of the sale of Soviet licenses to the U.S. will be discussed.

#### 1) Negotiating Process

One of the interviewees gave the following rather detailed description of the process he went through in negotiating the sale of a license to the Soviet Union:

It is very difficult, in the early stages of negotiations, to determine Soviet needs for particular types of US technology. During these stages, all that is known is that at least one Soviet enterprise has expressed an interest in technology that is available from at least one non-Soviet firm. Among the list of unknowns are questions of size and quantity, as well as other important details. Only Soviet interest in the technology is normally expressed and nothing else. Numerous trips to the USSR are usually necessary to answer some of these questions. Although the Soviets do, at times, travel to the United States, such meetings are usually reserved for later discussions.

Since initially so little is known of Soviet desires, the first meeting involves only the presentation of a minimum amount of information regarding the technology. Great detail is simply not possible to produce since actual Soviet needs are vague. However, some scattered information may be passed--including estimated prices. Once an estimated price has been openly discussed, funds must be made available to the FTO for the purchase of the technology and the equipment that almost always is purchased with it.

If the U.S. firm asks the FTO for additional information, personal contact then ceases for a short time. Since the FTO does not normally possess expertise in the field, does not necessarily know of the needs of the ultimate consumer, and is not able to determine answers to the U.S. firm's questions on its own, the FTO turns to the particular Soviet ministry involved, and they in turn pass on such needs to their specialists and to the State Committee for Science and Technology for answers. Actual negotiations have not yet begun, and the process is already a slow one. After the needed specifications are transferred, negotiations may begin, although the Soviets frequently change portions of the specifications which further delays the proceedings.

Finally, representatives of the firm and representatives of the FTO begin negotiations. The initial session usually outlines the calendar of events, the remainder of the negotiations merely involve refinements of the proposal submitted to the Soviets. Language differ-

ences as well as a U.S. desire to reach a conclusion quickly while the Soviets operate at a slower pace for bureaucratic reasons are some of the minor difficulties that personnel run into during the negotiations.

Negotiations of this type involve two elements. First is the exact determination of the technology involved (specifications, sizes, quantities desired, etc.) and actual approval of the purchase of it. Second, prices.

The next few weeks are spent discussing the desirability of the technology, and whether or not it conforms to Soviet needs. Finally, once an agreement has been reached, a great deal of time is spent discussing extremely detailed characteristics of the technology and equipment that is related to it. During the course of the negotiations, the actual site of the meetings is likely to shift from the FTO offices to those of the responsible ministry. The original proposal offered by the U.S. firm is undergoing major revisions and in the end may bear little or no resemblance to its original state. Finally, the first phase of the negotiations is concluded--both sides are aware of every detail involved in the technology and the equipment.

Commercial aspects of the negotiations usually occupy a majority of the negotiating time. Language is vital, and therefore paragraphs, sentences, and phrases require constant and accurate translation. Other areas of concern include guarantees of performance, and penalties for late delivery. Further, inspection of equipment in its on-site location is also important to both parties. Once such questions have been settled, prices are then discussed. After agreement has been reached in all areas, the contract may be signed. Financing arrangements and export approval follow.

One of the points stressed in both the literature and the interviews was the character of the Soviet negotiating team. The Soviet negotiators were consistently described as tough and experienced. They employed many experts with very narrow specialties. They were persistent and carefully plotted their moves. American negotiators, on the other hand were generally more casual, used to dealing in a familiar Western background of shared experience and customs, where (as was shown in the earlier section of this study) costs are not calculated very closely and more risks are taken. One source stated that the Soviets enter the negotiating process with a chess strategy, and the Americans with a poker strategy. Furthermore, many though not all, of those interviewed supported the whipsaw theory, arguing that the monopsonist Soviet buyer did play competing U.S.

firms against each other when there was more than one seller of the same technology. However, if there was a patent license involved, the Soviets appeared to favor the U.S. firm with the strongest patent protection.

Several aspects of the negotiating process appear to be of particular importance. One is the decision whether or not to apply for a Soviet patent. First of all, there is concern for the risk involved in the disclosure required in the filing for a patent. The Soviets require a full description in order to support the claim of novelty. This is similar to the U.S. requirement that the description of the invention be "in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains to make and use same."<sup>35</sup> This risk has to be balanced against the advantages of having a Soviet patent--it excludes imports into the Soviet Union of goods infringing the patent, and it offers tangible evidence of the industrial property rights owned by the U.S. firm and thus may have psychological effect in the negotiation process.

A second aspect concerns the negotiation of restrictions in the licensing contract. The Soviets always insist on unlimited rights to use the technology within the USSR. They apparently usually request exclusive, and if that cannot be got, then non-exclusive rights within CMEA. The exclusive rights can be resisted, especially if it can be demonstrated that the Soviets will not have the capacity to satisfy the CMEA market. Restrictions on Soviet rights in the West are opposed by Soviet negotiators with the argument that they need to sell in the West to earn hard currency to pay for the license.

A third aspect involves the transmission by the licensor to the licensee of modifications and improvements in the technology during the course of the contract. Interviewees indicated that this is generally resisted by U.S. firms, and that most US-USSR licenses did not provide for the supply of on-going technology. One interviewee stated that only notification of a change or improvement was agreed to.

A fourth aspect concerned arbitration. It is by now rather widely known that the Soviets accept third country (usually Swedish) arbitration of contract disputes. It is perhaps not as widely known that Licensintorg has never had to go to arbitration.

A fifth aspect involves the recapture of the technology after the completion of the contract or especially after cancellation of the contract. A Soviet specialist in licensing law stated that such return could be negotiated, but he was not sure how such negotiation would turn out. One American lawyer replied that he had successfully negotiated for the recapture of non-embedded technology, i.e. the return of documents, manuals, etc. He also stated that in the KamAZ contract, the technology of the automatic welding line was to be returned in case of termination for contract violation.

A final aspect of the negotiation process concerned the time and expenses involved. One interviewee, broadly familiar with US-USSR licensing experience, stated that at a minimum, negotiation expenses come to \$50,000-\$100,000, involving at least three trips to Moscow, personnel expenses, and engineering costs to redesign to Soviet needs. Another respondent connected with a current highly promising licensing deal, stated that her company started negotiating with the Soviets in 1974; first license in January 1977 leading to production of licensor's product in the Soviet Union, but under a made-up name; and starting in 1978, production under the licensor's trade-mark. The interviewee stated "over 100 trips" to the Soviet Union were made, mostly from the licensor's Swiss office.

Several of those interviewed indicated that the process of licensing--from initial contact to the actual transfer of the technology--generally takes about three years. One firm stated that they had participated in a licensing agreement that took only three months to negotiate and complete, but that such an occurrence was extremely rare. So too, was the agreement entered into by another U.S. firm that took over ten years to conclude.

It was pointed out that some of the risk involved in the negotiation process could be reduced by negotiating in stages. For example, licensor can take technology off the shelf and sign a first stage agreement. The Soviets are willing to make payment for this (see next section).

## 2) Pricing and Payment Procedures

The fundamental problem of the pricing of technology, i.e. of knowledge, has already been touched on in the earlier part of this report. Basically, the price of a pure license is a rent. The maximum price possible for a monopolist owner of the technology is the price that would capture the full value of the addition to profit (marginal revenue product) earned by the user of the technology. However, the actual price is determined by the bargaining between the buyer and seller, who enter the bargaining with certain reservation prices. The seller wishes at least to recoup his production (research) costs, and the buyer will not pay more than his own cost of reproducing the technology. All of this is stated, including the basic role of "use value" in a rather remarkable article by a Soviet economist.<sup>36</sup> Indeed, the Soviets themselves employ the principle of "use value" in establishing rewards payed to inventors.<sup>37</sup> The levels of such rewards are set as a function of the savings in cost produced by the use of the invention. The rewards, however, are not permitted to be extremely high: a principle which carries over into their approach toward pricing of international licensing. It is clear from the interviews, however, that Soviet negotiators in bargaining hard for low prices, stress costs of production, usually ignoring utility.

One of the complicating issues is the common insistence on the Soviet side that Soviet payment for a foreign license be in the form of a lump sum rather than a royalty. A Soviet licensing authority, when asked to explain this preference, gave three reasons. One, the Soviet price system is very different from Western systems, and these differences create difficulties for the use of sales value as a royalty base. Two, Soviet purchasers do not know what their future holdings of hard

currencies will be and thus cannot commit themselves to such payments over a prolonged period. And third, in order to pay royalties, information about production and/or sales would have to be provided, "and it might not be in the interest of the Soviet purchaser to provide such data." That the third point creates problems was recognized by all the Americans interviewed. Although, they said it was just this sort of lack of information that makes licensing arrangements with the Soviet Union so difficult.

It should be recognized, however, that royalties are permissible by Soviet law and have on occasion been used. And there are indications that they are being discussed in the renewed (or soon to be renewed) Bendix spark plug negotiations and negotiations for a fast-food restaurant chain in Moscow for the 1980 olympics.

An important consequence of the prevalence of lump sum payments is that it puts U.S. negotiators at a disadvantage. First of all, American businessmen are used to using the standard royalty rate for licensing deals. In interviews, they indicated that their usual approach was just to try to calculate what the total royalty over the life of the contract would be at the standard rate. The problem with this, said one interviewee, is that the figure comes out to be extremely high, especially when (if appropriate) calculated in relation to a population of 260 million people. Soviet negotiators have a psychological advantage in attacking such large figures (see discussion in previous part of paper) especially when compared with U.S. company's R and D expenditures, which the Soviets argue, are already fully amortized anyway.

The total payment is normally paid out in several installments. One U.S. lawyer stated that he always tries to negotiate as many payment "events" as he can: signing of contract, delivery of documents, training, beginning of production, anniversaries. Also, some of those interviewed said they had been able to negotiate a pre-contract disclosure fee, and one lawyer advocated trying to negotiate a forfeit fee (or "option") to be paid by Soviets if no contract is signed.

All those interviewed noted the increased pressure by Soviet negotiators in the last few years for U.S. firms to accept compensation or counter-purchase payment arrangement. One point made in regard to pricing in compensation deals is that the price used should not be the world price for the product because the licensor is entitled to make a profit on the use or resale of his product. Secondly, with counter-purchase, if the product is outside the domain of the ministry working the license, inter-ministerial bureaucratic problems are substantial.

### 3) Guarantees

U.S. negotiators are very wary about the guarantees and penalties for failure to meet them that are demanded by the Soviets. Of greatest concern is the performance guarantees in situations where the U.S. side has little control over the management of the production. One interviewee stated that he tries to negotiate as many obligations of the Soviet side as possible, so that if there is failure, it is possible to attribute it to Soviet action.

U.S. firms are usually hesitant to approve Soviet proposals for a means of performance verification. The normal Soviet suggestion presented during the negotiating phase is that the USSR Chamber of Commerce and Industry will conduct all necessary tests to determine if deadlines are being met, and whether or not plant and equipment purchases are meeting previously agreed upon levels. The fact that the USSR Chamber of Commerce and Industry is usually reliable is not sufficient reassurance to Western firms. They naturally desire on-site testing of their own-- something to which the Soviets are reluctant to agree. Typically, the Soviets permit some outside inspection for a "reasonably" short time (during the construction or installation phases and immediately afterwards) and then allow only Soviet inspections. At times, third parties have been allowed to monitor production. Also, when a U.S. trademark is licensed, there is apparently more willingness on the Soviet side to give U.S. firms access to the production site.



#### 4) Information Availability

There is general complaint, on both sides, about insufficient information. The Soviets complain that U.S. firms with advanced technology do not publicize it (see above for similar statements). And U.S. businessmen argue that Soviets do not publish enough data for U.S. decision-making purposes. One provided the following list of data normally used in the West by his company, for licensing decisions, pointing up the sharp gap in information about the Soviet economy:

- A discussion of the population characteristics, e.g. education and type of labor force;
- A marketing profile of the country giving the total overall imports and exports, long-and short-term trade policy, future trade prospects, type of currency, rate of exchange, currency restrictions, history of currency stability and projections for the future, import duties availability of local credit, amount and type of foreign aid, balance-of-payments picture, total national budget, portion of budget for the relevant products, and the quality and quantity of transportation, communications, power and natural resources;
- A legal analysis of the rules, regulations and laws governing the establishment of license agreements, joint ventures or other business relationships or associations;
- A study of the relevant market characteristics including market outlook in short, medium and long term, present equipment stock in country by types and manufacturer and market share, manner in which competitors are represented in the country, and the name and type of competitive equipment manufactured locally;
- A study of any initial capital requirements and a five year pro forma projection of revenue, operating expenses manpower, profit before and after tax, projected return on assets and investment, additional capital support, and details of any rules or laws concerning the repatriation of profit and capital.

An interesting point was raised during one of the interviews regarding information transmitted by technical journals. It was generally agreed that the exchange of technical information through journals and other published forms was not significant, although the use of such journals was important in determining some of the technological informa-

tion that could be exchanged. Also, it was expressed several times during the interviews that the benefits of such journals accrue largely to the Soviets and not the Americans--most of the flow in this form travels from West to East, and as often as not, the Western statistics and specifications stand the test of time whereas those of the Soviet publications often do not.

Those interviewed (both within the licensing sphere, and those outside of it) all agreed that a vast majority of technical information travels from the U.S. to the USSR. There were two reasons presented, neither of which bears on Soviet censorship of information. They are,

- There are far more scientific and technical journals published in the United States than in the Soviet Union and, therefore, the U.S. would have more journals to exchange; and
- Although no statistics are available, all persons interviewed agreed that there were more Soviet scientific and technical personnel with an English language background than counterparts in the United States with the ability to read journals published in Russia.

The Soviets are usually better prepared and can more easily obtain information they seek, according to one licensing executive interviewed, whose prior experience working for one of the Foreign Trade Organizations lent credence to this argument:

They (the Soviets) come prepared. They do not need to be briefed on petty, non-technical matters. If they need technical information, they often don't have to ask for it, they know where to find it.

#### 4) Sale of Soviet Licenses

The sale of Soviet licenses to the U.S. has been extensively discussed by John Kiser.<sup>38</sup> Just a few remarks will be made here. Basically Kiser argues that Soviet license sales to the U.S. have not been very

great, but not because the Soviets have nothing to sell, but because they have been poor salesmen.

One of the U.S. businessmen interviewed was conversant with the sale of Soviet licenses in the U.S. He too was very critical of Soviet sales management. Furthermore, he had strongly negative views of Soviet patent operations. He said that Soviet patents are poorly drawn, "they can easily be walked through." The Soviets do not give sufficiently detailed descriptions of their technologies to meet U.S. requirements and they tend to list the laboratory head on all the inventions from that laboratory, thus constituting fraud in American practice.

One interesting issue in the Soviet sale of licenses to the U.S. is the desire on the part of some U.S. businesses contemplating purchase to reduce their risk by acquiring an exclusive license from the Soviets. Though the issue is complex, they run the risk of anti-trust prosecution in such cases.

#### IV PROSPECTS

In discussing the prospects for expanded U.S.-USSR licensing activity, there are two sets of factors which affect the issue. The first is the set of factors which affect the prospects for the general expansion of U.S.-USSR trade and economic relations. The second is the set of factors which specifically affect licensing as a form of economic relations.

Turning to the first of these, while this is not the place for an extended discussion of the future prospects for U.S.-USSR economic relations, it can be said that Soviet need for improved productivity and modernization remain strong. Thus, the pressure that led Soviet leaders to intensify their demand in the late 1960s for advanced technology remains strong. An additional short run factor moving in this direction is the pressure added by the 1980 Olympics; not only the desire to look good, but even more, as one interviewee put it, the desire to avoid shame. The continued expansion of the Soviet Union's ability to purchase U.S. machinery and technology is constrained, of course, by its limited ability to earn hard currency. But the recourse to compensation and counter-purchase payment arrangements reduces this as a constraint on licensing activity.

In the second group of factors, those specific to licensing as a form of economic relations and a channel for technology transfer, are several implications for U.S.-Soviet licensing that can be drawn from the discussion, earlier in the study, of the general characteristics of the licensing trade. The first involves the size of the licensing firm. It was shown that in general it was the smaller firms who engaged licensing, while large firms prepared direct foreign investment and joint ventures. However, in licensing activity with the Soviet Union, it is often difficult for the small firm to participate, large size and significant resources being required. This is so because of the substantial negotiating expenses that are involved and the fact that the typical licensing activity

with the Soviet Union involves much more than just a pure, free-standing technology license, thus adding to the complications, burden and risk, without giving the large firms the benefits of equity ownership that they prefer.

A second implication derives from the product life cycle model. It was argued that licensing tends to come late in the product life cycle. This would reduce the benefit of the technology transfer, to the Soviet licensee, if indeed he actually did want (as the Soviets often profess) the latest, frontier technology.

A third implication is related to the mode of payment. When the mode of payment is a royalty determined as a royalty rate times sales or some other activity level, it is to the interest of the licensor that the licensee be successful, for his reward is a function of that success. But when the mode of payment is a lump sum, that mutuality of interest is no longer fostered. While payment in installments does give the Soviets some protection in this regard, it is a counter measure rather than a force for positive relations.

One clear conclusion from this discussion is that both the U.S. licensor and the Soviet licensee have an interest in an arrangement that is more than licensing--the U.S. firm prefers direct investment and the Soviets prefer the commitment consequences though not the property relationships of direct investment. In fact, one Soviet interviewee stressed that what was wanted from licensing was a real relationship rather than a one-shot deal. It would appear that movement toward joint venturing would have a beneficial effect. A Soviet legal specialist argued that progress in this direction could better be achieved through creative contracting than through attempts at institutional change.

The interviews on the whole produced moderately to cautiously optimistic views on prospects for expanded licensing. Some of the more

successful were very bullish. One stated that her company's profit potential in the Soviet Union was great--Russians use the company's consumer product extensively, and with a big population, increasing standard of living and disposable income, the future looked rosy. Others were concerned with technology competition from other industrialized nations, but one argued that the U.S. was still dominant in very advanced, high priced technology, thus while the numbers of licenses may not grow much, their value will. Furthermore, some of the physical, geographic similarities between the U.S. and USSR help the U.S. competitive position, e.g., in such fields as long distance electric power transmission.

Another interviewee talked of different prospects for different industries. In chemicals, he felt there will be substantial expansion of licensing activity. The Soviets, he said, will be going into specialty items which will increase their needs for licenses to convert the primary chemical products they are now producing into more sophisticated items: In the automobile industry, he felt, licensing will also increase. But in machine tools and computers, there is not much likelihood of expansion.

What can the U.S. government do to stimulate the trade in licenses? Almost all those interviewed stressed the need for more information not only about licenses being offered for sale, but also about the state of each other's technology, sector by sector. The government(s) should expand exchanges of technical information and of technical people. In this way, each of us can learn what is needed and where we might fit in.

A second theme was normalization of relations, take the politics out of business. A Russian complained that the need for Department of Commerce clearance of technology sales added a full year to licensing negotiations. An American argued, "All dollars are green; they keep our country going."

Finally, several American businessmen argued that the U.S. government should go beyond mere normalization and support U.S.-Soviet licensing and economic relations in general, the way other Western governments do. According to one licensing executive:

"West European governments play a direct role in concluding licensing agreements (as well as other aspects of international trade). Various organizations serve private industry by aggressively working to develop information regarding the competitive position of the firm relative to firms of other nations. Further, with the aid of their own diplomatic personnel in the Soviet Union, they initiate contracts with the various Foreign Trade Organizations so that the domestic firm need not be as concerned with such aspects as an American firm would.

European governments, and to some extent the Japanese government also, look benignly on such government intervention. If such practices were initiated in the United States, the Justice Department, reacting from pressure from the business sector, would rapidly initiate an investigation into this government-private sector involvement. It is the attitude of the U.S. government that involvement of this type with the private sector would not work. They simply could not pull it off--because the public believes that we (those involved in dealing with the Soviet Union) are all crooks. The timing is wrong, this should have begun years ago. The difference between international trade practices in the United States and the rest of the world is staggering.

While not many others of those interviewed expressed themselves as strongly as this, the thrust of what many said was not too different.

APPENDIX



# LICENSINTORG ORGANIZATIONAL CHART

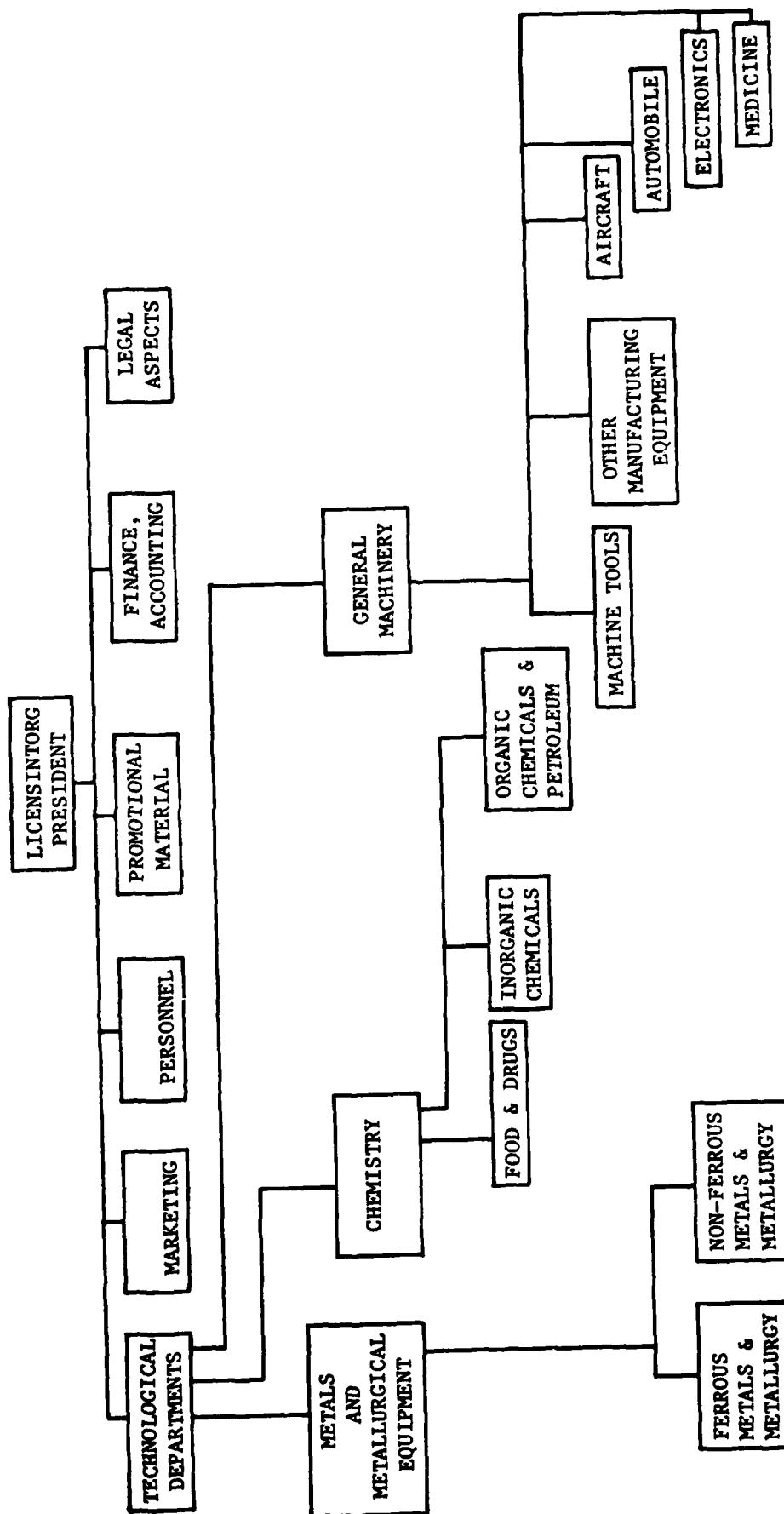


Figure 1

#### FOOTNOTES

- <sup>1</sup> The five companies covered the following areas: chemical production, offshore oil drilling equipment, ferro-alloys, electric power transmission, tobacco products.
- <sup>2</sup> Bloxam, G.A., Licensing Rights in Technology, Gower Press, London 1972, pp xv, 1.
- <sup>3</sup> Ibid., p. 16.
- <sup>4</sup> Lovell, E.B., Appraising Foreign Licensing Performance, National Industrial Conference Board, Business Policy Study No. 128, New York, 1969, p. 16.
- <sup>5</sup> Ibid.
- <sup>6</sup> Ibid., p. 52.
- <sup>7</sup> Ibid., p. 26.
- <sup>8</sup> Department of Commerce, Survey of Current Business, Part II, June 1978, pp. 16-17.
- <sup>9</sup> Ibid.
- <sup>10</sup> Ibid.
- <sup>11</sup> The following quotation from an article by Gary Hufbauer is illustrative. In discussing the preferences of businessmen and governments for the different channels of technology sale, he states:

...the economic rationality of these preferences remains to be demonstrated. Case studies are clearly needed to determine the level of earnings on technology, and whether those earnings consistently vary with mode of sale. Such studies will not be easy. It is difficult to discern the price of know-how, since the earnings on technology are usually commingled with the returns to capital. Moreover, the costs of selling know-how vary with the means of delivery--export of goods, overseas production, licensing, or takeover bids. Finally, as R.E. Lipsey has pointed out, the risks may systematically differ between modes. The production and sale of advanced technology goods involves substantial risks. Accordingly, investment ventures should on the average earn higher

returns, but with greater variance, than a straight license of the same technology. By the same logic, exports should yield an intermediate return with intermediate variance. Exports involve some production risk, but presumably less than the risk which accompanies ventures in a foreign country. Whether these speculations are supported by case studies remains to be discovered.

G.F. Hufbauer, "Technology Transfers and the American Economy," in National Science Foundation, The Effects of International Technology Transfers on the U.S. Economy, Washington, D.C., July 1974, pp. 51-52.

- <sup>12</sup> Zenoff, D.B., "Licensing as a Means of Penetrating Foreign Markets," Idea, Summer 1970, Vol. 14 (1970-71), p. 294.
- <sup>13</sup> Vernon, R., "International Investment and International Trade in the Product Cycle," Quarterly Journal of Economics, LXXX:1, February 1966.
- <sup>14</sup> \_\_\_\_\_, Sovereignty at Bay, Basic Books, New York, 1971, Ch. 3, especially pp. 65-77.
- <sup>15</sup> Wilson, R.W., "The Effect of Technological Environment and Product Rivalry on R&D Effort and Licensing of Inventions," Review of Economics and Statistics, LIX:1, February 1977. Wilson's focus is the domestic U.S. economy and the data for his econometric estimations come only from U.S. firms, but the general results have implications also for foreign licensing.
- <sup>16</sup> See, e.g., Caves, R.E., "Effect of International Technology Transfers on the U.S. Economy," in National Science Foundation, The Effects of International Technology Transfers on the U.S. Economy, Washington, D.C., July 1974, p. 32.
- <sup>17</sup> Wilson, op. cit., p. 173.
- <sup>18</sup> Mansfield, E., Romeo, A., and Wagner, S., "Foreign Trade and U.S. Research and Development," Mimeo, 1978.
- <sup>19</sup> Caves, op. cit., p. 7.
- <sup>20</sup> Zenoff, op. cit., p. 299.
- <sup>21</sup> In some cases, the revenue from foreign licenses, though small, is considered to be a windfall because the licensed technology was not intended to produce royalty income. The industrial property, for example, may have been designed for internal use as part of a particular manufacturing process.

- <sup>22</sup> Mansfield, et al, op. cit., p. 14a.
- <sup>23</sup> Bloxam, op. cit., pp. 70-72, 183.
- <sup>24</sup> See., e.g., Lovell, op. cit., Chapters 4-9; Zenoff, op. cit., pp. 300-302.
- <sup>25</sup> See Zenoff, op. cit., pp. 300, 304.
- <sup>26</sup> The authors are indebted to Professor Myron Uretsky for his help in the preparation of this section of the report.  
See, e.g., Transfer of U.S. Technology to the Soviet Union-Impact on U.S. Commercial Interests, Stanford Research Institute (SSC-TN-3543-1), Washington, D.C., 1976, Ch. 3.
- <sup>27</sup> Quoted in Gorodisskii, M.L., Litsenzii vo vneshnei torgovle SSSR, Moscow, 1972, p. 5.
- <sup>28</sup> The Paris Convention was originally adopted in 1883 and has been revised many times since. It currently has a membership of 80 countries including all ECE nations. Members have undertaken to adopt certain minimum standards of protection applicable to patentees generally, but particularly to foreign patentees.
- <sup>29</sup> Gorodisskii, op. cit., p. 183. See, also Efimov, K., Amirdzhanyants, F., and Volynets-Russet, E., Patentno-litsenizionnye problemy, "Planovoe khozyaistvo", 1970:10.
- <sup>30</sup> Business International, Doing Business with Eastern Europe, 1975.
- <sup>31</sup> See, e.g., Hanson, P., "Technology Transfer to the Soviet Union," Survey, Spring 1977-78, Vol. 23:2 (103), pp. 91-95.
- <sup>32</sup> Data are from J.P. Young, "Quantification of Western Exports of High Technology to Communist Countries," Office of East-West Policy, U.S. Department of Commerce, Mimeo, N.D. (probably 1978), Tables 2 and 5.
- <sup>33</sup> Starr, R., and Casella, P.F., "Technology Transfers, Licensing and Co-operation Projects with the USSR," in R. Starr (ed), Business Transactions with the USSR, ABA, 1975, p. 127.
- <sup>34</sup> Gosplan SSSR, Metodicheskie ukazaniya k razrabotke gosudarstvennykh planov razvitiya narodnogo khozyaistva SSSR, Moscow, 1974, pp. 9-20. The following discussion draws also on Business International, op cit.
- <sup>35</sup> Van Dyke, D., "Industrial Property Protection in the USSR," in R. Starr (ed), Business Transactions with the USSR, ABA, 1975, p. 114.
- <sup>36</sup> Belosapkin, O., "Ekonomicheskaya priroda tseny litsenzii," Izvestiya Akademii Nauk SSSR, Seriya Ekonomicheskaya, Vol. 3, No. 3, May 1972.

<sup>37</sup> See Van Dyke, D., op cit., and Martens, J.A., The Development of the Soviet Law on Inventions, 1919-1959, unpublished PhD Dissertation, Notre Dame University, 1977.

<sup>38</sup> Kiser, J.W., Report on the Potential for Technology Transfer from the Soviet Union to the United States, Washington, D.C., 1977.

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